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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/849,195	05/20/2004	Karl M. Gutttag	KAGU-0002-UTY	7299
22506	7590	04/28/2005	EXAMINER	
JAGTIANI + GUTTAG 10363-A DEMOCRACY LANE FAIRFAX, VA 22030			DHARIA, PRABODH M	
			ART UNIT	PAPER NUMBER
			2673	

DATE MAILED: 04/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Supplemental
Office Action Summary

Application No.

10/849,195

Applicant(s)

GUTTAG ET AL.

Examiner

Prabodh M Dharja

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2005 and 20 April 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 May 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 05-20-04 01-06-05
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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1. **Status:** Applicant representative has requested on telephone interview on April 20, 2005 more detailed elaboration of rejection of Claim 1, of non-final office action mailed on 04-14-2005 which have been placed of record in the file. Claims 1-15 are pending in this action.

Priority

2. It is noted that this application appears to claim subject matter disclosed in prior Application No. 60/471,731, filed on 05-20-2003 and 60.568,253 filed on 05-06-2003. Acknowledgment is made of applicant's claim for domestic priority under U.S.C. 119(e). Applicant has complied with one or more conditions for receiving the benefit of an earlier filing date under, 35 U.S.C. 119(e) by making specific reference to the earlier filed application; in the instant application. A reference to the prior application has been inserted as the first sentence of the specification of this application.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yumoto et al. (6,542,142 B2) in view of Scheffer et al. (5,585,816).

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Regarding Claim 1, Yumoto et al. teaches a device (Col. 1, Line 14, Col. 18, Lines 44-49) comprising: electrode means comprising at least one electrode (Col. 1, Lines 22-27, Col.18, lines 40-51) for controlling (Col. 1, Lines 22-27, Col. 18, Lines 52-58) a light modulating element of an array (Col. 17, Lines 53-61) of light modulating elements (Col. 17, Lines 53-64).

However, Yamamoto et al. fails to teach recursive feedback control means for controlling at least one pulse width using recursive feedback, said pulse width driving said electrode means.

However, Scheffer et al. teaches and recites a device (Col. 5, Lines 19) comprising: electrode means comprising at least one electrode (Col. 5, Lines 30-34) for controlling a light modulating element of an array of light modulating elements (Col. 6, Lines 1-16, **LCD's pixels are considered as light emitting and modulating element, abstract, (Col. 25, Lines 31-38)** where light is being controlled by modulating pulse width (Col. 14, Lines 40-67)) and recursive feedback control means for controlling at least one pulse width (**See figure 20, Col. 25, Lines 52-57 Pseudo Random Binary Sequences uses hardware to generate recursive feedback control, which Swift function uses to control pulse width modulation to control brightness, contrast, grayscale of the pixels (each pixel consists of pixel electrodes) (Col. 14, Lines 40-67), which are considered as light emitting and modulating element, in a LCD display (Col. 3, Lines 43-59, abstract, Col. 26, Lines 47-55))** using recursive feedback (Col. 10, Lines 4-25, Col. 10, Line 57 to Col.11, Line 20), said pulse width driving said electrode means (Col. 26, Lines 47-67, Col. 7, Lines 43-60, Col. 10, Lines 4-25, Col. 10, line 57 to Col. 11, Line 20, Col. 14, Lines 40-67, Col. 26, Lines 47-55).

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Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Scheffer et al. in to the teaching of Yumoto et al. to be able to control pulse width using recursive feedback control to control light intensity of each light modulating element or pixel to produce better resolution display (better contrast, better gray scale).

Regarding Claim 2, Scheffer et al. teaches recursive feedback is based on an output bit (Col. 26, Lines 47-67, Col. 7, Lines 43-60, Col. 10, Lines 4-25, Col. 10, line 57 to Col. 11, Line 20).

Regarding Claim 3, Scheffer et al. teaches output bit is a drive output bit 4 (Col. 5, Lines 30-32, Col. 6, Lines 1-16, Col. 26, Lines 47-67, Col. 7, Lines 43-60, Col. 10, Lines 4-25, Col. 10, line 57 to Col. 11, Line 20).

Regarding Claim 4, Scheffer et al. teaches output bit is an intermediate output bit (Col. 5, Lines 30-32, Col. 6, Lines 1-16, Col. 26, Lines 47-67, Col. 7, Lines 43-60, Col. 10, Lines 4-25, Col. 10, line 57 to Col. 11, Line 20).

5. Claims 5-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yumoto et al. (6,542,142 B2) in view of Scheffer et al. (5,585,816) as applied to claims 1-4 above, and further view of Van Dijk (4,847,854).

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Regarding Claim 5, Yumoto et al. teaches a device (Col. 1, Line 14, Col. 18, Lines 44-49) comprising: electrode means comprising at least one electrode (Col. 1, Lines 22-27, Col. 18, lines 40-51) for controlling (Col. 1, Lines 22-27, Col. 18, Lines 52-58) a light modulating element of an array (Col. 17, Lines 53-61) of light modulating elements (Col. 17, Lines 53-64).

However, Yumoto modified by Scheffer et al. fails to teach device includes a backplane and wherein said backplane includes said recursive feedback control means.

However, Van Dijk teaches device includes a backplane and wherein said backplane includes said recursive feedback control means (Col. 4, Lines 32-38, 44-51, Col. 11, Lines 4-6, Col. 14, Lines 51-56, Col. 15, Lines 13-16, Lines 63-68, Col. 16, Lines 17-21, Col. 16, Lines 52,53, 57-60, Col. 17, Lines 18-20, Col. 4, Lines 33-52).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Van Dijk in to the teaching of Yumoto modified by Scheffer et al. to be able control changes in the pulse width using recursive feedback control based upon all the data entered.

Regarding Claim 6, Van Dijk teaches device includes a panel interface controller and wherein said panel interface controller includes said recursive feedback control means (Col. 4, Lines 32-38, 44-51, Col. 11, Lines 4-6, Col. 14, Lines 51-56, Col. 15, Lines 13-16, Lines 63-68, Col. 16, lines 17-21).

Regarding Claim 7, Van Dijk teaches electrode means comprises at least two electrodes (Col. 2, Lines 10-15).

Regarding Claim 8, Yumoto et al. teaches array of light modulating elements is part of a visual display apparatus (Col. 1, Line 10-16).

Van Dijk teaches a visual display apparatus including said array of light modulating elements (Col. 16, Lines 58-60, Col. 17, Lines 10-14, 18-20, Lines 31-41, Col. 28, Lines 8-13).

Regarding Claim 9, Van Dijk teaches array of light modulating elements on a single silicon backplane (Col. 4, Lines 32-38, 44-51, Col.11, Lines 4-6, Col. 14, lines 51-56, Col. 15, Lines 13-16, Lines 63-68, Col. 16, lines 17-21).

Regarding Claim 10, Scheffer et al. teaches recursive feedback is explicit (Col. 26, Lines 47-67, Col. 7, Lines 43-60, Col. 10, Lines 4-25, Col. 10, line 57 to Col. 11, Line 20).

Regarding Claim 11, Van Dijk teaches recursive feedback is implicit (Col. 4, Lines 32-38, 44-51, Col.11, Lines 4-6, Col. 14, lines 51-56, Col. 15, Lines 13-16, Lines 63-68, Col. 16, Lines 17-21).

Regarding Claim 12, Van Dijk teaches pulse width comprises at least two pulse widths (Col. 4, Lines 64-67, Col. 5, lines 15-18, Col. 14, Lines 51-56, Col. 15, Lines 13-16, 47-68, Col. 16, lines 17-21).

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Regarding Claim 13, Scheffer et al. teaches device include a plurality of pixel value bits for controlling a pixel value (Col. 5, Lines 19-34, Col. 6, Lines 1-16, pixels are considered as light emitting and modulating element, abstract, Col. 25, lines 31-38 where light is being controlled by modulating frames) of said pulse width and wherein said recursive feedback control means only uses some of said pixel value bits to determine a next state of said pulse width (Col. 3, Lines 40-43, Col. 9, Lines 55-63, Col. 10, Lines 17-27, Col. 12, Lines 19-23, Col. 5, Line 4-6, Col. 4, Lines 43-51, Col. 10, Lines 38-54, Col. 8, Lines 8-45).

Van Dijk teaches pulse width comprises at least two pulse widths (Col. 4, Lines 64-67, Col. 5, lines 15-18, Col. 14, Lines 51-56, Col. 15, Lines 13-16, 47-68, Col. 16, lines 17-21, Col. 27, Lines 20-25).

Regarding Claim 14, Yumoto et al. teaches a visual display apparatus including said array of light modulating elements (Col. 1, Lines 10-16, Col. 15, Lines 3-11).

Van Dijk teaches a visual display apparatus including said array of light modulating elements (Col. 16, Lines 58-60, Col. 17, Lines 10-14, 18-20, Lines 31-41, Col. 28, Lines 8-13).

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yumoto et al. (6,542,142 B2) in view of Scheffer et al. (5,585,816) and Van Dijk (4,847,854) as applied to claims 1-14 above, and further in view of Kang et al. (KR2002039800 A).

Regarding Claim 15, Yumoto et al. teaches a device (Col. 1, Line 14, Col. 18, Lines 44-49) comprising: electrode means comprising at least one electrode (Col. 1,

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Lines 22-27, Col. 18, lines 40-51) for controlling (Col. 1, Lines 22-27, Col. 18, Lines 52-58) a light modulating element of an array (Col. 17, Lines 53-61) of light modulating elements (Col. 17, Lines 53-64).

However, Yumoto modified by Scheffer et al. and Van Dijk fails to teach visual display apparatus is an LCoS device and wherein said visual display apparatus includes pH indicating means indicating when a liquid crystal and/or the environment surrounding said liquid crystal of said visual display apparatus is damaged.

However, Kang et al. teaches visual display apparatus is an LCoS device and wherein said visual display apparatus includes pH indicating means indicating when a liquid crystal and/or the environment surrounding said liquid crystal of said visual display apparatus is damaged (page 2,3, paragraph detailed description, it is well known to one in the ordinary skill (C12,18-N6 azacrown (R=--CO--Ph--OC.sub.12 H.sub.25) and C16,18-N6 azacrown (R=--CO--Ph--OC.sub.16 H.sub.33) among the azacrown-type compounds represented by the formula (II), and octadecylthiophthalocyanine (R=--SC.sub.18 H.sub.37) among the phthalocyanine-type compounds represented by the formula (III), all exhibit a discotic disordered phase directly below isotropic phase and are preferably used, US patent no. 6,159,562).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Kang et al. in to the teaching of Yumoto modified by Scheffer et al. and Van Dijk to be able have field sequential LCD display to improve contrast and it will all exhibit a discotic disordered phase directly below isotropic phase (damaged to display material).

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Allowable Subject Matter

7. The indicated allowability of claim 15 is withdrawn in view of the newly discovered reference(s) to withdraw allowability of the objected claim being dependent. Claim 15 is being rejected based on the newly cited reference(s) above.

Response to Arguments

8. Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

9. Applicant's arguments filed 01-05-05 have been fully considered but they are not persuasive. Applicant argues Rushing does not teach or suggests using pulse width to drive an electrode.

Examiner disagrees as Rushing does teach or suggests using pulse width to drive an electrode (Col. 4, Lines 9-28, Col.10, lines 28-62). However, Rushing fails to specifically recite word "pulse width"; the previously mailed non-final rejection on 11-23-2004, using Rushing is withdrawn.

Applicant argues Rushing fails to teach or suggests electronic noise or minimizing storage requirement.

Examiner disagrees, as Rushing does teach electronic noise or minimizing storage requirement (Col. 10, Lines 51-62, Col. 2, Lines 12-23). The combination of Rushing and Van Dijk do obviate.

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Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Lu et al. (5,414,623) Opto-electronic system for implementation of iterative computer tomography algorithms.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M Dharia whose telephone number is 703-605-1231. The examiner can normally be reached on M-F 8AM to 5PM.

12. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-3054938. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

13. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

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April 21, 2005



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